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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,508	12/21/2004	Patrick Ward	26533U	8383
20529	7590	09/14/2005	EXAMINER	
NATH & ASSOCIATES 1030 15th STREET, NW 6TH FLOOR WASHINGTON, DC 20005			ZHU, JOHN X	
			ART UNIT	PAPER NUMBER
			2858	

DATE MAILED: 09/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/518,508

Applicant(s)

WARD, PATRICK

Examiner

John Zhu

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9 is/are rejected.
- 7) ☒ Claim(s) 5-8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

#### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (hereinafter AAPA) in view of Ahuja (5,388,022).

With respect to claims 1,2 and 3, AAPA discloses a residual current detection circuit comprising means for detecting an imbalance current and providing an output (Output of FWR, fig. 2) whose amplitude corresponds to the magnitude of the residual current. Furthermore, AAPA discloses capacitor (Fig. 2, element C2), which acquires a charge corresponding to the amplitude of the output and provides that signal via a parallel resistor (Fig. 2, element R5).

AAPA does not disclose simultaneously applying the output the detected current to two channels with one of the channels being time delayed and providing a final output signal through an AND gate only when the first signal exceeds a first level at the input of the AND gate and a second signal corresponding to the amplitude of the voltage on the capacitor exceeding a second level at the other input of the AND gate.

Ahuja discloses an auto reset circuit breaker that utilizes simultaneous providing a first and second channel (Fig. 1, node 25) wherein the second channel is delayed to an AND gate (Fig. 1, element 30) that outputs a trip signal only when both signals are coincident.

It is known that AND gates are used in digital logic and inherently possess threshold values at inputs that corresponds to logic high or low values. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the two channels coupled to an AND gate as taught by Ahuja into the system of AAPA for the purpose of automatically controlling the reset switch when the trip voltage values and current drop below a specified predetermined value (Ahuja, column 2, lines 12-15).

With respect to claims 4 and 9, AAPA disclose the output of the full wave rectifier as a voltage value. Furthermore, a circuit analysis of an AND gate confirms that it inherently comprises comparators that compares the values of the inputs, in this case, the first and second channels, with reference voltages to determine the logic level. As disclosed in the above rejection, the first channel is the output from the full wave rectifier, and the second channel is a time delayed signal of the output of the full wave rectifier. The AND gate also clamps (by outputting logic zeros) the output of the first zero until the occurrence (logic one) of the second signal.

***Allowable Subject Matter***

3. Claims 5, 6, 7 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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4. The following is a statement of reasons for the indication of allowable subject matter: Claim 5 is allowable over the art of record because the prior art does not teach or suggest a residual current detector or ground fault detector that comprises charging a second capacitor upon the occurrence of a second comparator output signal followed by a third comparator for comparing the voltage level of the second capacitor with a reference voltage.

Claims 6, 7 and 8 are allowable as they depend from an allowable claim.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hashimoto et al. (5,856,902) discloses an earth leakage breaker with a first, second and third comparator means to accurately detect faults and trip breakers. Park (5,600,523) discloses an earth leakage breaker utilizing a delay of the detected residual current to trigger breakers. Chen et al. (4,347,541) discloses a circuit breaker with multiple delays. Langford et al. (6,650,516 B2) discloses a device for detecting electrical faults by isolating the power source from the faults. Dhar (4,725,913) discloses a residual current detector. Nemir et al. (6,262,871 B1) discloses a fail safe fault interrupter that enhances the safety of RCD's.

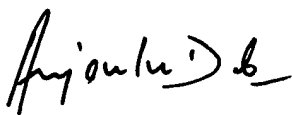
**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Zhu whose telephone number is (571) 272-5920. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JZ

  
**ANJAN DEB**  
**PRIMARY EXAMINER**

John Zhu  
Examiner  
Art Unit 2858

